



Full Length Research Article

INCIDENCE AND HOST PLANTS FOR *AMRASCA BIGUTTULA* (ISHIDA) FROM KOLHAPUR REGION,  
INDIA

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ABSTRACT

*Amrasca biguttula biguttula* (Ishida) (Hemiptera: Cicadellidae) is polyphagous pest of many agricultural and nonagricultural plants. It sucks the cell sap from leaves, flowers, fruits and tender stems and affects the growth of crop plants adversely. It also creates sooty mould on crop leaves which affect photosynthesis, growth and yield of the crops. *A. biguttula biguttula* attacked Cotton (*Gossypium hirsutum* L.), Brinjal (*Solanum melongena* L.) and Okra (*Abelmoschus esculentus* L.) throughout the year. It was also found attacking Sunflower *Helianthus annuus* L., Cowpea *Vigna unguiculata* L., China Rose (*Hibiscus rosasinensis* L.), Pigeon pea (*Cajanus cajan* Millsp.) and several grasses including durva lawns (*Cynodon dactylon* L.). Occurrence of the Jassid and its damage to different plants is discussed in the paper.

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INTRODUCTION

*Amrasca biguttula biguttula* (Ishida) (Hemiptera: Cicadellidae) is polyphagous pest of economically important crops including agricultural and nonagricultural plants. It is highly destructive to hybrid crop varieties. Conventional pesticides are widely used in control of Jassids but pesticides lead several serious problems like pest resistance, pest resurgence, secondary pest outbreak, pollutions, health hazards and destruction to ecocycle, etc. Elimination of host plants of pest is one of the important concepts of pest management. The present work will be helpful for understanding the host range of economical and non economical host plants. The review of literature indicates that several workers worked on Jassid diversity, occurrence and host plant diversity. Note worthy among them refer to Fuleiro (1982), Hussain and Lal (1940), Mishra and Prasad (1985), Ahmad (1986), Mahato (1990), Suman *et al.* (1990), Shekar *et al.* (1993), Ratanoara *et al.* (1994), Patel and Patel (1998), Sathe and Margaj (2001), Tariq *et al.* (2002), Kamble *et al.* (2014), Sathe *et al.* (2014), etc.

MATERIALS AND METHODS

Occurrence and crop range of *A. biguttula biguttula* have been studied by spot observations, Jassids sitting on broadest single

leaf found on 1 feet twig from terminal point of each crop or largest leaf in case of seedlings. Few samples of Jassids have been collected for confirmation of its identification.

The Jassids have been identified by consulting appropriate literature cited in the reference section. Observations were made at morning hr between 8.00 am to 9.00 am at 15 days intervals on various crops such as Cotton (*Gossypium hirsutum* L.), Brinjal (*Solanum melongena* L.), Okra (*Abelmoschus esculentus* L.), Sunflower (*Helianthus annuus* L.), Cowpea (*Vigna unguiculata* L.), China Rose (*Hibiscus rosasinensis* L.), Pigeon pea (*Cajanus cajan* Millsp.) and several grasses including durva lawns (*Cynodon dactylon* L.).

RESULTS

Results are recorded in table 1 and Figures 1 to 8 indicated that *A. biguttula biguttula* was found throughout the year on the crops Cotton (*G. hirsutum*), Okra (*A. esculentus*), Brinjal (*S. melongena*) and China rose (*H. rosasinensis*). On Cowpea (*V. unguiculata*) and Pigeon pea (*C. cajan*) it was found in monsoon season. On Sunflower (*H. annuus*) the incidence of Jassid was found during both the seasons i.e. Kharif and Rabbi. On Sunflower, Cotton and Okra higher number of Jassids/ leaf was found feeding by sucking the cell sap and making the leaves curly, yellow and dry and finally

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Table 1. Occurrence of *A. biguttula biguttula* on various crops in Kolhapur region

Sr.no.	Crop	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May
1	Cotton	2	5	8	8	2	2	-	1	2	3	4	1
2	Okra	10	12	7	6	3	2	1	1	1	2	4	2
3	Sunflower	0	9	12	10	7	6	0	3	7	8	8	2
4	Brinjal	5	5	1	2	1	1	1	1	2	3	3	4
5	Cowpea	3	2	3	2	2	-	-	-	-	-	-	-
6	China rose	1	2	1	2	1	1	1	1	2	2	2	1
7	Pigeon pea	-	1	2	4	3	2	-	-	-	-	-	-

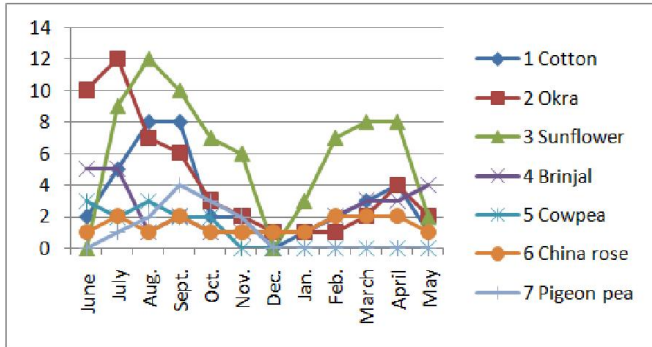


Fig. 1. Occurrence of *A. biguttula biguttula* on various crops

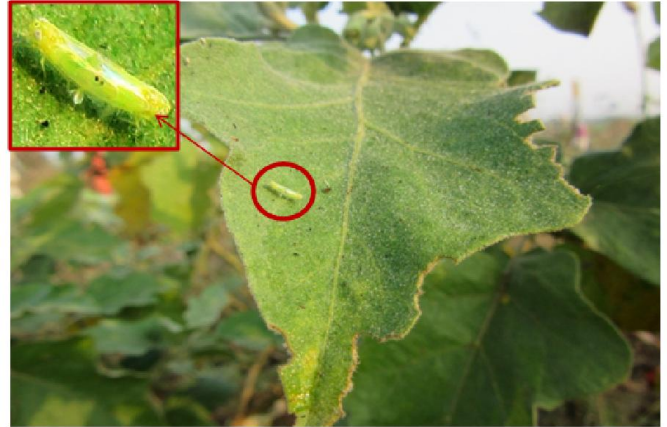


Fig. 4. *A. biguttula biguttula* on *Solanum melongena* Millsp



Fig. 2. *Amarasca biguttula biguttula* (Adult)

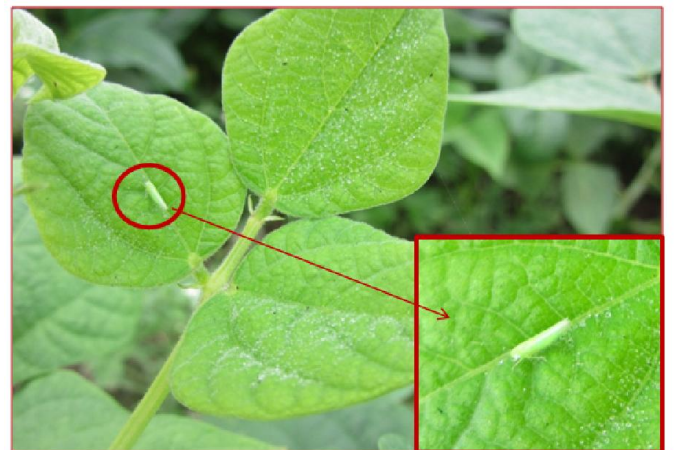


Fig. 5. *A. biguttula biguttula* on *Vigna unguiculata* L.



Fig. 3. *A. biguttula biguttula* on *Cajanus cajan* Millsp



Fig. 6. *A. biguttula biguttula* nymph on *Heliantus annuus* L.

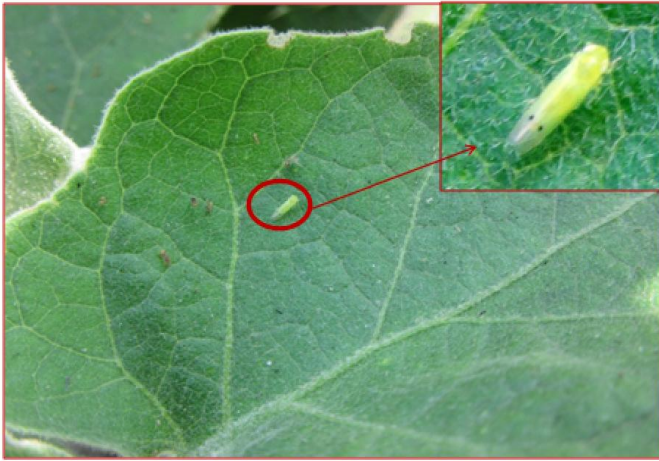


Fig. 7. *A. biguttula biguttula* on *Abelmoschus esculentus* L.

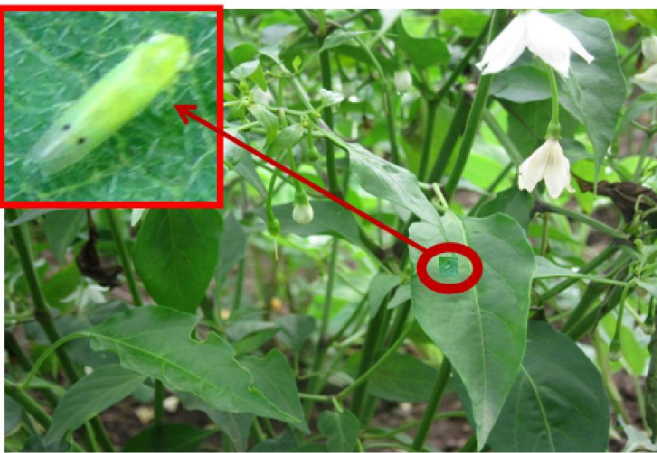


Fig. 8. *A. biguttula biguttula* on *Capsicum annum* L.

dropping down on the ground. The pest also secreted honey dew like substance on the crops which created sooty moulds and further affected the growth and yield of the crops. *A. biguttula biguttula* also damaged durva (*C. dactylon*) lawns in Kolhapur throughout the year.

## DISCUSSION

Tariq *et al.* (2002) studied the population dynamics of leafhoppers *A. biguttula biguttula* on Brinjal with respect to abiotic factors. The leafhopper started the activity soon after transplanting. The serious activity was noticed from 21<sup>st</sup> May to 6<sup>th</sup> August. The highest leafhopper number per leaf was found as 12.98± 0.93 on 9-7-96. Mean maximum and minimum temperature were found as positively and significantly correlated with population change. Relative humidity and rainfall was found as from the last week of July a downward trend in population. The preferred habitat for Jassid nymphs were the underside of leaves. Mud splashed on the underside of leaves during heavy rain resulted in good control of jassid numbers on cotton (Hanna, 1950). Sunshine was positively correlated with population dynamics (Marbet, *et al.* 1984). Population studies and relationship between density and damage were conducted in 1994 to 2001 to determine the pest status of the jassid *Empoasca dolichi* Paoli

by Egwurube, *et al.* (2005) on ground nut *Arachis hypogaea* L. in Nigeria. Their analysis showed that *E. dolichi* numbers varied significantly from one year to another and within each year the numbers of leafhoppers observed at the plant were significantly different ( $P = 0.01$ ). Very recently, Kamble *et al.* (2014) studied vertical destructive pattern of *A. biguttula biguttula* to sunflower. Wherein they noted that the lower leaves had lowest number of nymphs and upper highest. The peak of incidence was noted in the month of August on monsoon crop. According to Faleiro and Rai (1985) the leaf hopper damage to okra during early and late stages of its growth had very little influence on fruit yield. *A. biguttula biguttula* is polyphagous pest which found throughout the year on cotton, brinjal and China rose but it migrate to various crops for their survival and cause considerable damage to various economically important crops. Hence its eco friendly control is needed.

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